

REMARKS

Status of Claims

Claim 5 is amended to independent form by incorporation of original claim 1.

Applicants note that claim 22 (“the sequential peaks”) should properly have depend from claim 21 (“at least two wave peaks”), there being no antecedent basis for “sequential peaks” in claim 7. Claim 22 being within the elected species, and depending from the subject matter of claim 21, Applicants submit that claim 21 should have been included in the elected species. In any case, the subject matter of claims 21 and 22 is now incorporated into claims 1 and 8, rendering this point moot.

Regarding the status of the claims, Applicants note that, in response to a Restriction Requirement, Applicants had elected without traverse the Invention of Group I, claims 1-28 and 38-39, drawn to a transport pipe and method of use.

Applicants herewith cancel claims 29-37, drawn to a method of making pipe.

In response to an Election of Species requirement, “to which the claims shall be restricted if no generic claim is finally held to be allowable”, Applicants had elected the species of Figure 1.

Claims indicated as reading on the elected species at the time of the requirement were: 1, 2, 7 – 12, 14, 15, 18, 19 and [21], 22-28.

It was understood that if the elected species is allowable, the Examiner will proceed to examine additional species. Thus, claims to non-elected species are considered withdrawn only until claims to elected species are found to be allowable.

In the present Office Action the Examiner indicates that claims 3-6, 13, 16, 17, 20, [21,] and 29-39 are withdrawn from further consideration as being drawn to a non-elected invention and species, there being no allowable generic or linking claim.

With respect to species claims, *Applicants respectfully traverse*, and submit that original claim 1 is a generic linking claim, and that all species are sufficiently related to be examined in the same application.

The present invention is concerned with the task of developing a light-weight, abrasion-resistant pipe for transport of high-viscosity materials.

The inventive solution is based upon the idea, that by selecting a suitable combination of materials, a pipe with low structural weight can be developed, which nevertheless has a sufficient stability and abrasion resistance for transport of concrete with high bend stiffness. The invention is achieved by the following combination of characteristics:

- an ***inner pipe*** made of an abrasion-resistant plastic,
- at least one ***joint element***, materially joined to the outside of an end of the inner pipe, the joint element including ***ring sleeve*** (appendage, fitting, projection) concentric to the inner pipe and ***axially extending from a radially projecting collar*** (flange),
- as well as a ***reinforcing jacket*** (casing, envelope) enclosing at least the internal pipe and connected thereto and to the joint element,
- wherein the radially projecting collar of the joint element is defined by a ring-shaped end face and by a thereto joined ***ring step*** extending radially towards the inside of the pipe and recessed axially from the ring-shaped end face, and ***wherein the plastic material of the inner pipe engages in the ring step (22) from the inside of the pipe.***

Accordingly, upon determination of allowability of generic claim 1, claims to non-elected species must be examined.

Turning now to the present Amendment, the subject matter of claims 21 and 22 has been incorporated into each of independent claims 1 and 8. Claims 21 and 22 are canceled.

Original claim 1 is now incorporated into claim 5 – a non-elected species but within generic original claim 1.

Thus, it is respectfully submitted that the current status of claims is as follows:

Claims 1, 2, 7 – 12, 14, 15, 18, 19 and 23-28, all reading on the elected species, are currently under examination;

Claims 3-6, 13, 16-17 and 20, reading on non-elected species but within generic claim 1, are withdrawn but will be considered following determination of allowability of claim 1; and

Claims 21, 22 and 29-37 are canceled.

Claim Rejections - 35 USC § 112

Claims 1 and 8 are indefinite for reciting a broad range or limitation together with a narrow range or limitation.

In response, Applicants delete:

- “in particular for concrete” from the claims.
- “preferable” limitation from claim 2.
- “preferably truncated” from claim 5.
- “in certain cases” in favor of “and/or” in claim 7.
- “in certain cases” from claim 8.
- “, preferably the entry side,” and “, preferably the exit,” from claim 17.
- “, preferably via an adhesion promoter or primer applied over the joint element”

from claim 24/

- “preferably steel” from claim 27.
- “, preferably injection molded or produced in a press mold” from claim 28.

Finally, claims 38 and 39 are amended to correct for antecedent basis.

Withdrawal of the rejections is respectfully requested.

Claim Rejections - 35 USC § 102

Claims 1 and 2 are rejected under 35 U.S.C. §102(b) as being anticipated by Oldham (FR 2197140).

Claims 8-12, 18, 19, and 23-27 are rejected under 35 U.S.C. §102(b) as being anticipated by Montaron (EP266810).

Claims 8-12, 18, 19, and 24-28 are rejected under 35 U.S.C. §102(b) as being anticipated by Klein (DE 1932448).

Claim 8 is rejected under 35 U.S.C. §102(b) as being anticipated by Maclachlan.

Claim 8 is rejected under 35 U.S.C. §102(b) as being anticipated by Peavy.

Claim 8 is rejected under 35 U.S.C. §102(b) as being anticipated by Schwarz (GB 1396119).

Claims 1, 2, 7-12, 18, 24-26, and 28 are rejected under 35 U.S.C. §102(b) as being anticipated by McLarty.

Applicants note that claims 21 and 22 are not rejected as anticipated.

Claims 21 and 22 have both been incorporated into each of claims 1 and 8.

Accordingly, the claims as presently amended are free of the cited anticipating prior art.

Withdrawal of the rejection is respectfully requested.

Applicants further mention that all the cited references with the exception of McLarty were cited in the PCT International Preliminary Report on Patentability, and that the subject matter of claim 1 was found allowable over this prior art in for the following reasons:

The design of the undulations according to the characterizing part of claim 1 ensures a largely smooth join between the reinforcement sheath and the annular extension of the collar element without excessive bulging and sharp deflections. This in turn results in an optimal form-fit between the annular extension and the reinforcement sheath, so that even under heavy axial loading there is no danger of length changes in the conveyor pipe.

Turning now to McLarty, it is noted that this disclosure is at best duplicative of Montaron (EP266810), however on closer examination is less relevant than Montaron. McLarty teaches in col. 3, lines 14 on “Near the end of the pipe shown is a quantity of filler material 3, the primary purpose of which is to form a hump which optimizes the forces acting on filaments 2 overwound thereon, in order to more fully utilize the tensile strength of the filaments. **Filler material 3 is comprised of resin-impregnated chopped strand glass** positioned circumferentially around the plastic liner 1 ...” Thus, the “hump” 3 of McLarty is not associated with the end ring (12) according to the present invention.

For all the above reasons, withdrawal of the anticipation rejection is respectfully requested.

Claim Rejections - 35 USC § 103

Claims 14, 15, 19, 22, 23, and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over McLarty. The reference to McLarty discloses all of the recited structure with the exception of what materials are used such as polyurethane (pu), providing pins or bolts to hold the parts together, and forming the waves of decreasing outer extent and

providing more than one wave, however these are considered merely choices of mechanical expedients. It would have been obvious to one skilled in the art to modify the inner liner and connector of McLarty by forming such of PU, providing pins or bolts to hold them together, and to provide more than one wave of decreasing dimension as such are merely choices of mechanical expedients and are old and well known in the art where only routine skill and experimentation are required to achieve optimum results.

Applicants respectfully traverse.

Claims 1 and 8, as amended, claim a transport pipe designed such that the undulations ensure a largely smooth joint between the reinforcement sheath and the annular extension of the collar element without excessive bulging and sharp deflections. This in turn results in an optimal form-fit between the annular extension and the reinforcement sheath, so that even under heavy axial loading there is no danger of length changes in the conveyor pipe. As disclosed in paragraph [0018] of the specification as filed: “Therefrom there results an optimal form fitting between ring sleeve **18** and outside lying reinforcing jacket **14**, so that even with high axial stresses or loads no longitudinal enlargening of the transport pipe is to be feared.”

McLarty merely teaches in col. 3, lines 14 on “Near the end of the pipe shown is a quantity of filler material 3, the primary purpose of which is to form a hump which optimizes the forces acting on filaments 2 overwound thereon, in order to more fully utilize the tensile strength of the filaments. **Filler material 3 is comprised of resin-impregnated chopped strand glass** positioned circumferentially around the plastic liner 1 ...” Thus, the “hump” 3 of McLarty is not associated with the end ring (12) according to the present invention.

Regarding claim 22, McLarty provides no suggestion for use of multiple peaks. In fact, providing two peaks, and the valley between them, would result in relaxing of windings in the valley, in contrast to McLarty teaching a hump to optimize the forces acting on filaments 2.

Regarding claim 27, McLarty teaches that the hump is resin-impregnated chopped strand glass, not steel.

For the above reasons, withdrawal of the obviousness rejection is respectfully requested.

Patentability of (withdrawn) claim 3

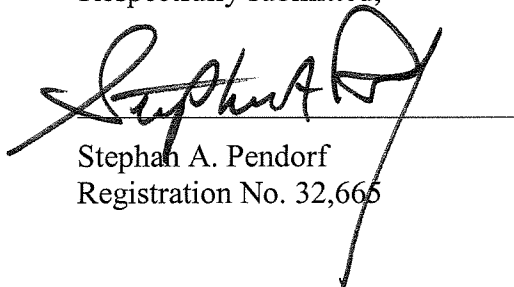
Applicants note that claim 3 is currently withdrawn, but will be in turn for examination.

Applicants would like to point out that claim 3, directed to the refinement “extending from the recessed border surface of the ring step (22) a diagonal or curved transition surface (28) extends in the axial direction to the inner radius of the inside of the cylindrical ring sleeve (18)” concerns the addition of a trumpet-like diverging opening bevel **32 at the pipe juncture**. The divergence ensures that the liquid concrete flowing in the coupled transport pipes exerts no sheer forces on the joint location between inner pipe and collar which would lift or peel the inner pipe from the joint element. Any amount of viscous material which penetrates into the separation gap between the end faces **20** of two adjacent transport pipes would be immobile in the area of the separation gap between inner pipe and joint element, so that no wear or lifting forces engage at this location.

Thus, claim 3 should be examined as a proper dependent claim. It is respectfully submitted that claim 3 is also I condition for allowance.

The Commissioner is hereby authorized to charge any fees which may be required at any time during the prosecution of this application without specific authorization, or credit any overpayment, to Deposit Account Number 16-0877.

Respectfully submitted,



Stephan A. Pendorf
Registration No. 32,665

Patent Central LLC
1401 Hollywood Blvd.
Hollywood, FL 33020-5237
(954) 922-7315

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